



NASA Technology Enables Better Patient Care

Smaller, smarter biometric device remotely monitors vital signs in real time



A biomedical device originally developed to monitor the health of astronauts in space is now available to help doctors remotely monitor their patients. Developed under NASA-sponsored research and now sold by FlexLife Health, Inc., vMetrics™ is a lightweight, compact, wireless device for home health monitoring. The wearable device can measure heart rate, blood pressure, glucose, temperature, prothrombin time, joint angle, oxygen saturation, and more. Used for real-time monitoring of patients during pre- and post-surgery, clinical trials, and home health care, the technology helps patients stay more connected to health care providers, reduce the frequency and duration of hospital stays, and take greater control over their health.

vMetrics is a trademark of ZIN Medical.

Benefits of Technology Transfer

- **Lower medical costs:** vMetrics lowers medical costs for patients who need routine monitoring but do not require the level of care offered during a hospital stay.
- **Better health care:** The modular design allows physicians and medical researchers to customize patient monitoring for a number of protocols, including cardiovascular, neurological, sleep disorders, obstetrics, orthopedics, and more.
- **Comprehensive monitoring:** Existing devices monitor only one parameter at a time. However, 40 percent of patients who need monitoring have multiple symptoms or complications. Only vMetrics can simultaneously monitor a patient's entire spectrum of symptoms and conditions.

SECONDS

On the Record

“We at Glenn are thrilled and amazed at the commercial success vMetrics has achieved. If the commercial market can take a technology forward and develop it, we can take the resulting product and spin it back into NASA when we need it. That is very nice leveraging for us.” — *Marsha Nall, program manager, ISS and Human Health Office, NASA’s Glenn Research Center*

“Based on the strong link with NASA and clinical experts, this technology is being developed into the leading remote patient monitor.” — *Alan Chmiel, engineering program manager, ZIN Technologies*

About FlexLife Health, Inc.

FlexLife Health, Inc., established in 2008, is a spinoff company jointly owned by ZIN Technologies, Inc., and Cleveland Clinic. ZIN Technologies and Cleveland Clinic have been collaborating with Glenn on compact, wireless biometric monitoring for astronaut and extravehicular activity (EVA) applications since 2004.

Technology Origins

Glenn needed a lightweight, compact, extensible, wireless device for monitoring astronaut health. Through a Small Business Innovation Research (SBIR) grant, ZIN Technologies and Cleveland Clinic jointly developed a medical monitoring device called BioWATCH. The device was lightweight enough for astronauts to wear on board a spacecraft and during space walks. While the device was being developed for NASA, ZIN began to consider how the technology could be used more broadly.

The Transfer Process

ZIN, Cleveland Clinic, and NASA recognized that the biometric device had the potential to help patients reduce the frequency of hospital and nursing visits, lower health care costs,

and improve patients’ overall quality of life. Because the device allows patient data to be remotely monitored in real time, physicians can check on a patient’s progress (e.g., during post-surgical rehabilitation) without requiring the patient to visit the clinic. ZIN Technologies and Cleveland Clinic jointly formed FlexLife Health to design, develop, commercialize, and market the space technology as vMetrics™.

Commercial Success

This technology has completed several successful clinical trials in the U.S. and Europe. vMetrics is now commercially available from FlexLife Health for home monitoring of chronic cardiovascular disease. The vMetrics system improves care by offering two-way communication between the patient and the health care provider. Prior to the use of vMetrics, these patients had to travel to meet with their health care providers several times per month. Studies have shown that the technology lowers chronic disease costs by reducing the re-hospitalization for heart failure by 72% and for all cardiac issues by 63%. The vMetrics system is uniquely capable of monitoring patients across a broad range of chronic diseases: congestive heart failure, hypertension, diabetes, chronic obstructive pulmonary disease (COPD), stroke, myocardial infarction, atrial fibrillation, sleep apnea, and more.

In a report on excellence in aging research, the United States Senate highlighted the collaborative government-industry work on the wireless biometric monitoring system as an example of “exemplary, publicly funded research related to older Americans.”



For More Information

If you would like additional information about Glenn’s technology transfer opportunities, please contact:

Innovation Projects Office
NASA’s Glenn Research Center
Phone: (216) 433-3484
E-mail: ttp@grc.nasa.gov
<http://technology.grc.nasa.gov>